Development of Cryogenic engine at ISRO

2613. SHRI SANJAY DALMIA: Will the PRIME MINISTER be pleased to state:

(a) the amount allocated and spent by Government, so far, for the development of Cryogenic engine at ISRO;

(b) the present status of the project;

(c) whether Government propose to make any review in this regard in view of the Russian willingness to supply Cryogenic engine; and

(d) if so, the details in this regard?

THE MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PUBLIC GRIEVANCES AND PENSIONS AND THE MINISTER OF STATE IN THE MINISTRY OF PARLIAMENTARY AFFAIRS (SHRI S. R. BALASUBRAMANIYAN): (a) Government have approved the development of indigenous cryogenic upper stage including engine in April 1994 with an outlay of Rs 335.89 Crores. The expenditure incurred till March 1997 was Rs. 144.72 Crores.

(b) Significant progress has been made in the development of cryogenic upper stage. The design of the engine is completed and realisation of the engineering model is underway. The details design of the stage is completed. The facilities required to fabricate and test the engine and stage are in advanced stage of readiness. A one tonne class pressure fed cryo engine has been successfully developed which gives confidence for the realisation of the larger engine.

(c) The development of the indigenous cryogenic stage was necessitated due to the stoppage of technology transfer from Russia. There is no change in that scenario even now. Russia is supplying the stages only for the initial flights of GSLV. In view of this, development of the indigenous cryogenic stage is essential for meeting the requirements of the GSLV Programme.

(d) Does not arise.

Cryogenic rocket engine from Russia

2614. SHRIMATI VEENA VERMA
SHRI SUSHIL KUMAR SAM
BHAJIRAO SHINDE:

Will the PRIME MINISTER be pleased to state:

(a) what success has been achieved, so far, in securing a Cryogenic rocket engine from Russia; and

(b) what steps have been taken so far, to produce such an engine indigenously?

THE MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PUBLIC GRIEVANCES AND PENSIONS AND THE MINISTER OF STATE IN THE MINISTRY OF PARLIAMENTARY AFFAIRS (SHRI S. R. BALASUBRAMANIYAN): (a) The development of the cryogenic engine and stage for the initial flights of Geo-synchronous Launch Vehicle (GSLV) is progressing in Russia. The technological mock-up model of the cryo stage has been received in India. The propellant filling mock up model is ready for shipment in Russia. The first flight stage is expected to be ready by the last quarter of this year.

(b) Government have approved the development of indigenous cryogenic upper stage including engine with an outlay of Rs. 335.89 Crores. Significant progress has been made in the development of cryogenic upper stage. The design of the engine is completed and realisation of the engineering model is underway. The detailed design of the stage is completed. The facilities required to fabricate and test the engine and stage are in advanced stage of readiness. A one-tonne class pressure